Strong external difference families (SEDFs) were introduced by Paterson and Stinson as a more restrictive version of external difference families. SEDFs can be used to produce optimal strong algebraic manipulation detection codes. We characterize the parameters \((v, m, k, \lambda)\) of a nontrivial SEDF that is near-complete (satisfying \(v = km + 1\)). We construct the first known nontrivial example of a \((v, m, k, \lambda)\) SEDF having \(m > 2\) subsets. The parameters of this example are \((243, 11, 22, 20)\), giving a near-complete SEDF, and its group is \(\mathbb{Z}_5^3\). The construction uses the point-orbits of the Mathieu group \(M_{11}\) acting on the projective geometry PG\((4, 3)\).

This is joint work with Shuxing Li, Simon Fraser University.